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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/631,998	09/30/2012	Okan Arikan	337722-337904/P15581US1	7817

133036 7590 05/02/2017

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EXAMINER	
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ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
05/02/2017	ELECTRONIC

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte OKAN ARIKAN, VINCENT DUMONT, GUILLAUME A. CARBONNEAU, and BILLY P. CHEN

Appeal 2016-004516
Application 13/631,998[1]
Technology Center 2600

Before DEBRA K. STEPHENS, JOHN R. KENNY, and PHILLIP A. BENNETT, *Administrative Patent Judges*.

BENNETT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–12, 14–25, and 27–31. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

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[1] Appellants' Brief ("App. Br.") identifies the real party in interest as Apple Inc. App. Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to generation of road data in digital maps using aggregate roads defined from multiple junctions and road segments. Spec. Abstract. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A non-transitory machine readable medium storing a program which when executed by at least one processing unit processes input map data to generate output map data for use in providing mapping information to a plurality of requestors, the program comprising sets of instructions for:
>
> receiving input map data comprising a set of road segments and a set of junctions for a map region, the set of road segments including a first road segment and a second road segment that intersect at a particular junction, each of a plurality of the road segments comprising location data, start and end junctions, and a set of road properties;
>
> determining whether the first road segment and the second road segment are separate segments of a same road based at least on whether the set of road properties of the first road segment are the same as a corresponding set of road properties of the second road segment;
>
> when the first and second road segments are separate segments of the same road, defining an aggregate road that references the first road segment, second road segment, and particular junction; and
>
> storing the aggregate road for later use in providing the mapping information to requesting mapping applications for the mapping applications to perform one or more mapping operations, wherein the stored aggregate road references a plurality of road segments and a plurality of junctions that connect the plurality of road segments.

App. Br. 39 (Claims Appendix).

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Jawerth	US 2003/0231190 A1	Dec. 18, 2003
Gieseke	US 2006/0015249 A1	Jan. 19, 2006
Parker	US 2008/0059889 A1	Mar. 6, 2008
Mikuriya	US 2008/0091344 A1	Apr. 17, 2008
Davis	US 2009/0150373 A1	June 11, 2009
Broadbent	US 2010/0250536 A1	Sep. 30, 2010
Kmiecik	US 2010/0266161 A1	Oct. 21, 2010
Vervaet	US 2012/0197839 A1	Aug. 2, 2012
Boldyrev	US 2013/0176334 A1	July 11, 2013

Dal Poz et al., "Automated Extraction of Road Network from Medium- and High-Resolution Images," PATTERN RECOGNITION AND IMAGE ANALYSIS, Vol. 16, No. 2, pp. 239–248, Pleiades Publishing, Inc., 2006.

REJECTIONS

Claims 24, 25, and 27–30 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement.

Claims 1–5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth and Broadbent.

Claims 6 and 8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, and Davis.

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, Davis, and Dal Poz.

Claims 17 and 20–22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Davis, and Dal Poz.

Claims 9, 10, 12, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, and Parker.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, Parker, and Dal Poz.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, Parker, and Boldyrev.

Claims 15 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, Parker, and Kmiecik.

Claims 18, 19, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Davis, Dal Poz, and Mikuriya.

Claims 24, 25, 27, and 30[2] stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Vervaet, Broadbent, and Gieseke.

Claims 28 and 29[3] stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, Vervaet, Gieseke, and Kmiecik.

OPINION

Claims 24, 25, and 27–30—Affirmed

Claims 24, 25, and 27–30 stand rejected under 35 U.S.C. § 112, first paragraph as lacking written description. The Examiner finds the last three limitations recited in independent claim 24 are not supported by Appellants'

The rejection of claims 24, 25, 27, and 30 under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Vervaet, Broadbent, and Gieseke, has been withdrawn by the Examiner, so we do not consider them in this decision. Ans. 40.[3] The rejection of claims 28 and 29under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, Vervaet, Gieseke, and Kmiecik, has been withdrawn by the Examiner, so we do not consider them in this decision. Ans. 40.

[3] The rejection of claims 28 and 29under 35 U.S.C. § 103(a) as being unpatentable over Jawerth, Broadbent, Vervaet, Gieseke, and Kmiecik, has been withdrawn by the Examiner, so we do not consider them in this decision. Ans. 40.

Specification. Ans. 56–60. In finding claim 24 lacks written description, the Examiner finds the claim is "significantly broader than what has been described in the disclosure" because Appellants combine two distinct embodiments to find support for the claim, and the required conditions described for utilizing the second combined embodiments are very specific. Ans. 60.

Appellants argue the disputed limitations in claim 24 are supported by the discussion on page 32 which provides an example of automatically filling in the height of a road segment data structure, in a situation where "a particular set of road segments [ ] intersect in the plane but do not meet at a junction," Spec. p. 32, ll. 12–17, and also by the teaching that "[s]ome embodiments automatically fill in values for at least some of the missing data of a road segment when possible, either using other information from the road segment or information from neighboring road segments." App. Br. 26–28 (citing Spec. 32, ll. 12–17, 31, ll. 9–10).

We are not persuaded by Appellants' arguments. Here, claim 24 recites "using information from the second road segment and the third road segment to automatically fill in the missing information for the particular road property of the first road segment." App. Br. 44 (Claims Appendix). Appellants only point to a single example, that of elevation data (*see* App. Br. 27–28), in which missing information for road property of the first road segment is automatically supplied using information from *both* a combined second road segment *and* a non-combined third road segment. Nor do we discern any additional disclosure in the Specification indicating that a broader way of using information from both the second and third road segment is contemplated. As a result, we find the Specification does not

reasonably convey possession of the full scope of claim 24. Therefore, we sustain the rejection of claim 24, as well as dependent claims 25 and 27–30, which fall with claim 24.

Claim 1—Affirmed

Appellants contend the Examiner erred in rejecting claim 1, and presents two arguments for reversal:

> *First*, Jawerth and Broadbent do not disclose or suggest defining an aggregate road that references the first road segment, second road segment, and particular junction. *Second*, the Office Action fails to provide a sufficient reason why it would have been obvious to one of ordinary skill in the art to combine the elements of Jawerth and Broadbent to arrive at the claimed invention.

App. Br. 15. We are not persuaded by either argument, and address each in turn.

Claim 1 recites "defining an aggregate road that references the first road segment, second road segment, and particular junction." In rejecting claim 1, the Examiner finds Broadbent "is directed to a method for integrating road names recorded in a source data, particularly comprising steps of merging all interconnected segments having this road name into a user road group and merging these user road groups if they belongs [sic] to the same physical road entity." Ans. 41 (quoting Broadbent Abstract). The Examiner further finds Broadbent discloses the use of a group data structure which organizes data as a road group, an example of which is shown in Fig. 6, in which each road name references multiple road segments. Ans. 41–42. The Examiner additionally finds Broadbent teaches the road group references multiple junctions, citing paragraphs 24 and 44. Ans. 42. Combining Jawerth and Broadbent, the Examiner finds a person of ordinary

skill in the art would have done so to "improve navigation database quality by integrating/aggregating road segments into roads." Final Act. 12.

Appellants contend the Examiner has failed to show Jawerth and Broadbent teach or suggest "defining an aggregate road that references the first road segment, second road segment, and particular junction" because Broadbent "merely mention[s] merging road segments with no mention of the resulting structure" and more specifically "gives no indication of them referencing junctions at all." App. Br. 14–16. As a result, according to Appellants, "[n]either Broadbent nor Jawerth disclose an aggregate road referencing a 'particular junction' or a 'plurality of junctions.'" Reply Br. 11. Appellants further contend the Examiner's reliance on paragraph 24 of Broadbent is misplaced because paragraph 24 relates to map software, which may have other methods of accessing junction data. Reply Br. 12. Appellants also contend the Examiner's cite to paragraph 44 is insufficient to support the rejection because "the depiction in Figure 6 merely depicts a 'user road group' referencing road segments." Reply Br. 12. Appellants also contend the Examiner's reasoning for combining the references contend the Examiner's finding is not supported because "the purposes, as defined by the Office Action, of the aggregation in each reference are at odds with each other." App. Br. 17. According to Appellants, because Jawerth is directed to simplifying databases and Broadbent to improving the quality of data, they "cannot be combined without sacrificing either the simplicity or the quality of the final product." App. Br. 17.

We are not persuaded by Appellants' arguments. Appellants emphasize the table shown in Figure 6 of Broadbent "merely depicts a 'user road group' referencing road segments," and does not show junction

information. Reply Br. 12. But the Examiner does not rely on Figure 6 alone. Rather, the Examiner additionally cites the description in paragraph 24 and also in paragraph 44, which teach road segments include both "road geometry and junctions," and are grouped "based on their connectivity across junctions." Ans. 42 (citing Broadbent ¶¶ 24, 44).

We agree with the Examiner that Broadbent teaches road groups which are collections of road segments as shown in Figure 6. Broadbent Fig. 6. We also agree with the Examiner that Broadbent teaches storing road segments which include both "road geometry and junctions . . . ." Broadbent ¶ 24. Thus when Broadbent's road groups reference road segments, they also reference those junctions included in the road segments. *See also,* Broadbent, claim 1. It follows then, we are unpersuaded the combination fails to teach "defining an aggregate road that references the first road segment, second road segment, and particular junction."

As noted above, Appellants contend the purposes of Jawerth and Broadbent are at odds with each other and cannot be combined without sacrificing either the simplicity or the quality of the final product. App. Br. 17.

We are not persuaded by this argument because although a proposed modification of a reference may impede some of its functionality, a combination of references is still proper. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) ("a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine"). Jawerth does not discredit the approach taken by Broadbent, nor does Broadbent discredit the Jawerth approach.

Accordingly, Appellants have not persuaded us the Examiner erred by improperly combining the teachings of Jawerth and Broadbent.

Claim 9—Affirmed

Claim 9 recites as follows[4]:

> A method for defining a set of data structures for a set of roads in a map region for an electronic mapping service that provides map tiles at a plurality of different zoom levels in response to user requests, the method comprising:
>
> defining a set of road segment data structures for portions of roads in the map region for which all road property information is constant, the road segment data structures for storing the road property information;
>
> defining a set of junction data structures for locations in the map region at which at least two road segments intersect;
>
> *defining a set of road data structures as ordered lists of road segments that link together at junctions as continuous roads in the map region*; and
>
> *storing a the set of road data structures that each reference a plurality of the junction data structures and a plurality of the road segment data structures*, the defined road data structures for use in generating map tiles for the map region at a plurality of different zoom levels.

App. Br. 41 (Claim Appendix) (italics added to show disputed limitations).

The Examiner rejects claim 9 as obvious over Jawerth, Broadbent, and Park. Appellants contend the Examiner erred in three respects. First, Appellants argue the Examiner erred in finding Jawerth discloses "defining a set of road data structures as ordered lists of road segments that link together at junctions as continuous roads in the map region." App. Br. 19. Second, Appellants argue the Examiner erred in finding Broadbent discloses "storing

[4] We note the typographical error in the last limitation of claim 9: "storing ***a the*** set of road data . . . ." In the event of further prosecution, Appellants should address this error.

a set of road data structures that each reference a plurality of the junction data structures and a plurality of the road segment data structures." App. Br. 19–20. Third, Appellants argue the Examiner failed to provide a sufficient reason for combining Jawerth, Broadbent, and Parker.

With respect to Appellants' first argument, we are not persuaded the Examiner erred. The Examiner finds "Jawerth explicitly teaches an ordered list of road segments that link together at junctions," and provides Figures 15–17 as examples of ordered lists of road segments. Ans. 46–48. The Examiner explains that in Jawerth Figure 16, "road 1 comprises an ordered list of road segment A1–A3, junction point A3, and road segment A3–A5." Ans. 48–49. The Examiner further cites paragraph 240 of Jawerth, which states "[w]e define the intersection nodes as Junction Nodes, including A3, and B3."

We agree with the Examiner's findings and reasoning , and further note Jawerth teaches the map data illustrated in Figures 15–17 is defined as an ordered list because it "is defined in a one-dimensional dBASE file." Jawerth ¶ 241.

We also are not persuaded by Appellants' contention that Broadbent fails to disclose "storing a set of road data structures that each reference a plurality of the junction data structures and a plurality of the road segment data structures." The analysis here is similar to the analysis of claim 1. Appellants contend Broadbent does not teach referencing junctions. In finding Broadbent teaches this limitation, the Examiner cites, as he did with claim 1, paragraphs 24, 44, and Figure 6. For the same reasons discussed above, we find the combination teaches

> defining a set of road data structures as ordered lists of road segments that link together at junctions as continuous roads in the map region; and
> storing a the set of road data structures that each reference a plurality of the junction data structures and a plurality of the road segment data structures.

Appellants also challenge the combination of references used in rejecting claim 9. In arguing the combination of Jawerth and Broadbent is improper, Appellants present substantially similar arguments as those discussed *supra* in connection with claim 1. For the same reasons, we are not persuaded the Examiner erred in combining Jawerth and Broadbent. Appellants also contend "[t]he Office Action does not allege that the addition of Parker adds to the obviousness of this claim limitation," but provides no specific reason for why the addition of Parker is improper. App. Br. 22. Accordingly, Appellants have not proffered sufficient argument or evidence to persuade us the Examiner has failed to provide sufficient reasoning in support of the combination relied upon to reject claim 9.

Claim 17—Affirmed

The Examiner rejects independent claim 17 as obvious over Jawerth, Davis, and Dal Poz. Claim 17 recites as follows:

> A method comprising:
> receiving, for a map region, a plurality of road segments and a plurality of junctions at which at least two road segments meet, each road segment storing road properties defining the road segment and location data indicating a path taken by the road segment through the map region;
> identifying a junction of the plurality of junctions at which first and second road segments of the plurality of road segments meet;
> *computing a score for the first and second road segments that accounts for similarity of names of the first and second road*

> *segments, an angular difference between the first and second road segments, and road properties of the first and second road segments*; and
>
> automatically combining the first and second road segments into an aggregate road that references the first and second road segments when the score is above a certain threshold.

App. Br. 42–43 (Claims Appendix) (italics added). Appellants contend the Examiner erred in concluding claim 17 would have been obvious because the combination does not teach "computing a score for the first and second road segments that accounts for similarity of names of the first and second road segments, an angular difference between the first and second road segments, and road properties of the first and second road segments."

In rejecting claim 17, the Examiner finds the combination of Jawerth, Davis, and Dal Poz teaches the "computing" limitation. More specifically, the Examiner finds Jawerth discloses determining connectivity probabilities based on similarity of names of first and second road segments and also based on road properties of first and second road segments. Final Act. 22 (citing Jawerth ¶ 56), Ans. 53–54 (citing Jawerth ¶ 62). The Examiner further finds Dal Poz discloses considering angular differences between road segments. Final Act. 24 (citing Dal Poz p. 243, section 2.2.1). The Examiner explains that Dal Poz "discloses when road segments approximately form a straight line, they are more likely to belong to the same road." Ans. 55. According to the Examiner, a person of ordinary skill in the art would have been motivated to add Dal Poz's consideration of angular differences so that additional relevant information could be used to determine whether two road segments are part of the same road. Final Act. 25. Because neither Jawerth nor Dal Poz explicitly disclose computing

a scope, the Examiner relies on Davis to show that computing a score for a plurality of considerations was known, finding it "reasonably pertinent to the particular problem with which the applicant was concerned" and further explaining that Davis teaches that "[s]coring is a commonly used method when multiple factors need to be considered." Final Act. 23, Ans. 54. According to the Examiner, a person of ordinary skill in the art would have been motivated to combine the teachings of Davis with Jawerth because the skilled artisan would have sought to use the concept of probabilities "to make [a] determination when available information is not perfect for such determination." Final Act 23.

Appellants argue Jawerth is deficient because "[d]etermining whether two road segments share the same name is different from computing a score that accounts for similarity of names." App. Br. 23. However, Jawerth need not show computing a score that accounts for similarity of names. Rather, the Examiner relies on Jawerth to show taking into account name similarity in a general sense, a teaching of Jawerth not disputed by Appellants. The Examiner does not rely on Jawerth to teach "computing a score," as the Examiner finds instead that Davis provides this teaching. Thus, Appellants' argument disputes a finding not made by the Examiner.

Appellants further contend starting and ending nodes of road segments cannot be considered "road properties," so the Examiner's finding that Jawerth teaches the use of road properties is unsupported. App. Br. 23–24. According to Appellants, shared junctions cannot be considered "road properties" because the "claim identifies a shared junction as a prerequisite for computing the score." Reply Br. 14–15.

We see nothing in the language of the claim or the disclosure of Appellants' Specification precluding nodes of road segments, such as junction nodes, from being considered road properties within the meaning of claim 17. Indeed, the Specification teaches "[r]oad segment data [includes] properties of roads," Spec. 22, ll. 8–9, and "the locations of junctions (also referred to as junctions) is part of the road segment data." Spec. 22, ll. 11–13. Accordingly, we are not persuaded the recited "road properties" cannot include junction information as argued by Appellants. Appellants also contend Jawerth is lacking because "[t]here is no computation of a score or any other value being assigned to the similarity of the two road segments disclosed in Jawerth." Reply Br. 14. This argument is unpersuasive because, as we explained above, the Examiner does not rely on Jawerth to teach "computing a score," as Davis provides this teaching.

With respect to Dal Poz, Appellants argue Dal Poz does not teach any comparison of angular difference between first and second road segments because it relates to extracting road information from photographs, and not to processing received map data. App. Br. 24–25. Appellants also contend Dal Poz is deficient because it only discloses thresholding operations measuring distance and collinearity. According to Appellants, these thresholding operations do not disclose computing a score based on angular differences. App. Br. 25.

We are not persuaded. Measuring whether two identified quadrilaterals are sufficiently parallel, which Appellants acknowledge is taught by Dal Poz, is a comparison of angular difference. That is, to determine whether two quadrilaterals are parallel, their angles with respect

to each other must also be determined. Accordingly, we are not persuaded the Examiner's reliance on Dal Poz is misplaced.

Appellants also take issue with the Examiner's use of Davis, arguing that because "Davis relates to determining whether to replace one piece of data with a newer piece of data, it is unclear how this is relevant to a threshold score for aggregating roads." App. Br. 24. As noted by the Examiner, Appellants appear to be arguing Davis is non-analogous art. Ans. 55. We are not persuaded, however, that the teachings of Davis are not pertinent to Appellants claims. The Examiner cites Davis as evidence that the use of probability scores to make determinations based on available data when multiple factors need to be considered, was a commonly used method. Ans. 55. A person of ordinary skill in the art would have sought to improve Jawerth by adding scoring as taught by Davis because Jawerth considered two different factors in determining the similarity of two road segments, and weighting these factors using Davis' scoring would have been a logical way to make a similarity determination, as shown in the examples set forth by the Examiner. Ans. 55. Accordingly, we do not agree with Appellants that the teachings of Davis are inapposite or that a skilled artisan would not have combined Davis with Jawerth.

Claim 6—Affirmed

Appellants separately argue Claim 6, which depends from claim 1, recites the limitation:

> wherein the set of instructions for determining whether the first road segment and the second road segment are separate segments of the same road comprises a set of instructions for computing a score that measures the likelihood of the second road segment being a continuation of the first road segment.

App. Br. 41 (Claims Appendix). The Examiner rejects claim 6 as being obvious over Jawerth, Broadbent, and Davis. Similar to the disputed limitation discussed in connection with claim 17, the Examiner finds Jawerth teaches measuring "the likelihood of the second road segment being a continuation of the first road segment," because it teaches that "[w]hile identifying junctions, one can merge poly-lines if they share the same street name and one of the starting and the ending nodes." Final Act. 14–15. The Examiner finds Davis teaches "computing a score" because Davis "discloses **computing a score that measures the** likelihood using available relevant information for a determination." Final Act. 15 (citing Davis ¶ 95).

Appellants argue Davis' probability score is incompatible to the problem of determining when to combine road segments, and therefore incompatible with the simple heuristics employed by Jawerth. App. Br. 33–34. For the same reasons we discussed above in connection with claim 17, we are not persuaded the Examiner improperly combined the teaching of Jawerth and Davis. Accordingly, we sustain the rejection of dependent claim 6.

Claims 8 and 20—Reversed

Appellants separately argue the rejection of claim 8, which depends from claim 6 and recites:

> wherein a third road segment intersects the first and second road segments at the particular junction, wherein the set of instructions for determining whether the first road segment and the second road segment are segments of a same road comprises sets of instructions for:
>
> computing a score that measures the likelihood of the third road segment being a continuation of the first road segment; and

comparing the score computed for the second road segment to the score computed for the third road segment.

App. Br. 40–41 (Claims Appendix). Claim 8 further recites a step wherein a third road segment intersects at the same junction at which the first and second road segments intersect. According to claim 8, scores are calculated measuring the likelihood that the first and second segment are the same road and the first and third segments are the same road. *Id.* Those scores are then compared with each other. *Id.*

In rejecting claim 8, the Examiner again relies on Jawerth, Broadbent, and Davis. Final Act. 16. The Examiner finds, however, that the cited combination does not explicitly disclose "computing a score that measures the likelihood of the third road segment being a continuation of the first road segment," and "comparing the score computed for the second road segment to the score computed for the third road segment." The Examiner concludes, without citing evidence, claim 8 would have been obvious finding "[i]t would have been well-known in the art that a ranking method may be used to determine the best candidate." Final Act. 16–17.

Appellants contend the Examiner's reliance on what is "well-known" is insufficient to support obviousness because the probability scores in Davis are not used to score multiple candidates and chose the best one. App. Br. 34.

We agree with Appellants. Here, the Examiner has not provided a sufficient explanation for why a skilled artisan would have sought to supplement the teachings of Jawerth, Broadbent, and Davis in the manner claimed. The Examiner posits that "the combination of the first and second road segments and the combination of the first and third road segments are possible options." Final Act. 17. This explanation is too speculative.

Accordingly, we do not sustain the rejection of claim 8. Moreover, for the same reason, we do not sustain the rejection of claim 20, which recites the use of multiple scores and "when the second score is greater than the first score, combining the second and third road segments into a second aggregate road and removing the second road segment from the first aggregate road." App. Br. 43 (Claims Appendix).

Claim 10—Reversed

Appellants also separately argue claim 10, which depends from claim 9. App. Br. 35–36. Claim 10 recites "[t]he method of claim 9 further comprising defining a set of edge data structure, wherein each edge references a single road segment." The Examiner rejects claim 10 as obvious over Jawerth, Broadbent, and Parker. Final Act. 33–34. With respect to claim 10, the Examiner finds paragraph 62 of Jawerth discloses claim 10 because it describes merging poly-lines, and each poly-line corresponds to an edge reference. Final Act. 34. We note that in rejecting independent claim 9, the Examiner finds Jawerth's poly-lines also correspond to the recited "road segment data structures." Final Act. 29.

Appellants argue the merging of poly-lines relied upon by the Examiner does not teach the limitation of "defining a set of edge data structures, wherein each edge references a single road segment" because an edge data structure is a separate element from the road segment data structures and the junction data structures.

We agree with Appellants that the Examiner has not shown how Jawerth's poly-lines can be considered edge data structures within the meaning of claim 10. Both the plain language of the claim and the Specification supports Appellants' contention that the recited "edge data

structure" is distinct from the other recited data structures (found in claim 9, from which claim 10 depends). *See, e.g.,* Specification Fig. 8 (showing the various data structures as distinct), p. 27, ll. 1–9. Because the Examiner has not explained how Jawerth's poly-lines can be simultaneously considered both "road segment data structures" and "edge data structures," we do not sustain the rejection of claim 10. For the same reason, we also reverse the rejections of claim 11 and claim 12[5] which depend from claim 10.

Remaining Claims

Appellants do not separately argue for patentability of claims 2–5, 7, 14–16, 18, 19, 21–23, 25, and 27–31. As a result, they fall with the independent claims from which they depend.

DECISION

The Examiner's rejections of claims 8, 10–12, and 20 under 35 U.S.C. § 103(a) are reversed.

The Examiner's rejections of claims 1–7, 9, 14–19, 21–24 under 35 U.S.C. § 103(a) are affirmed.

The Examiner's rejection of claims 25, and 27–31 under 35 U.S.C. § 112, first paragraph is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

[5] Because we do not sustain the rejection of claim 10, we need not address Appellants' separate argument pertaining to claim 12.

AFFIRMED-IN-PART